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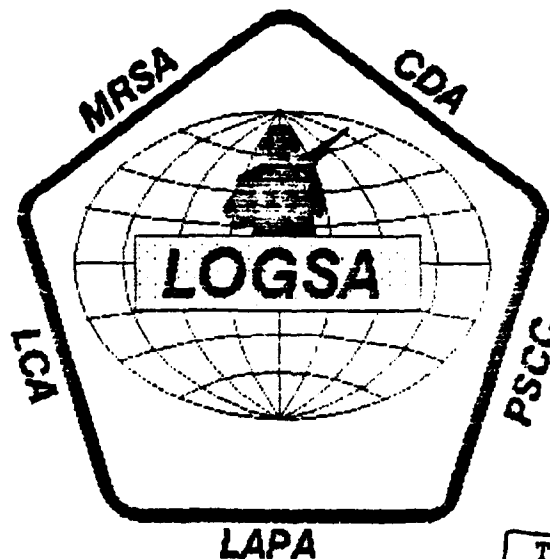
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SUPPLEMENT NO. 16

DECEMBER 1993

PACKAGING, STORAGE, AND
CONTAINERIZATION CENTER
REPORTS AND INFORMATION



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U.S. ARMY MATERIEL COMMAND LOGISTICS SUPPORT ACTIVITY

PACKAGING, STORAGE, AND CONTAINERIZATION CENTER

11 MIDWAY ROAD, TOBYHANNA, PENNSYLVANIA 18466-5097

FOREWORD

In January 1978, a bibliography was published listing, by month, all projects completed by the Center from July 1974 through June 1977. Since then, supplements 1 through 15 have been published listing all projects completed from July 1977 through September 1992.

This supplement (No. 16) incorporates all projects completed from October 1992 through September 1993.

This supplement should be filed with the bibliography dated January 1978 and supplements 1 through 15. Supplements will be published annually.

Copies of completed reports mentioned in this bibliography may be obtained from the Project Control Officer, Management Support Division, AMXLS-TM, DSN 795-6623.

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SUBJECT: REVISION OF JOINT REGULATION AR 700-15/NAVSUPINST
4030.28/AFR 71-6/MCO 4030.33/DLAR 4145.7

PROJECT: AMC 3-91

Apr 1993

ABSTRACT:

This project was established to accomplish a major revision of the Department of Defense (DOD) joint regulation on the packaging of materiel. As preparing activity for the publication, our responsibility included complete preparation of the revision and DOD coordination. Extensive changes were made throughout the document to include the addition of chapters for consolidation of several publications as well as a complete update of contents to reflect current DOD packaging policy. This document will provide activities within the military services and the Defense Logistics Agency (DLA) with the most current guidance on the packaging of materiel.

SUBJECT: SET ASSEMBLY/DISASSEMBLY METHODOLOGY

PROJECT: AMC 1-92

Jan 1993

ABSTRACT:

This project was established to develop a methodology for forecasting requirements for set assembly/disassembly workload. The methodology for forecasting general supply secondary items and ammunition was developed based on the statistical correlation of lines shipped and set assembly/disassembly man-hours. The methodology for forecasting general supply major items was developed based on the average man-hours used to accomplish an each with the eaches forecasted by the national inventory control points (NICP).

**SUBJECT: NATIONAL STOCK NUMBERS OF COMMONLY USED MILITARY
PRESERVATION AND PACKING MATERIALS**

PROJECT: TP 3-91

Jan 1993

ABSTRACT:

This project was developed in response to the many requests that the U.S. Army Materiel Command, Logistics Support Activity Packaging, Storage, and Containerization Center (LOGSA PSCC) received for assistance in identifying national stock numbers (NSN) for preservation and packaging (P&P) material. This material must meet military specification, packaging data sheet, or special packaging instruction requirements. The data provided in this report are for informational purposes only. The prices quoted were obtained from the Army Master Data File (AMDF) and are effective as of the date of the project completion. Prices on items listed in the AMDF are subject to change on a daily basis. Therefore, the AMDF should be consulted for an NSN's availability and current reported cost. This project is not a waiver or exemption from any supply, procurement, or other DOD regulation. The materials identified in this project are listed per the appendices on the contents page.

**SUBJECT: AUDIT OF INACTIVE U.S. ARMY ARMAMENT, MUNITIONS, AND
CHEMICAL COMMAND PLANTS AND ARSENALS**

PROJECT: TD 69-91

Jan 1993

ABSTRACT:

The purpose of this project was to identify ammunition storage space at inactive U.S. Army Armament, Munitions, and Chemical Command (AMCCOM) Army Ammunition Plants (AAP). Presently, this space is not reported on the Storage Space Management Report (SSMR). Additionally, an evaluation was conducted at the AAPs of the physical condition of storage facilities. The project identified available storage space at the inactive AAPs. Also, it identified converted facilities, structural problems with facilities, and discrepancies resulting from inadequate maintenance of facilities. A file containing SSMR data was established in LOGSA PSCC to ensure future visibility of this space.

**SUBJECT: EVALUATION OF PRESERVATIVE MATERIALS FOR THE U.S. ARMY
ARMAMENT, RESEARCH, DEVELOPMENT, AND ENGINEERING CENTER**

PROJECT: TE-LS-72-91

Jan 1993

ABSTRACT:

A long-term study was performed by LOGSA PSCC for the U.S. Army Armament, Research, Development, and Engineering Center, Rock Island, IL, to determine if certain combinations of preservative and barrier materials provide adequate corrosion protection to the surfaces of ferrous items. The materials evaluated were barrier materials MIL-B-22019, MIL-B-121, and MIL-P-3420 and preservative materials MIL-L-3150, MIL-C-16173 and VV-L-800. Combinations of the above materials were applied to steel panels, and the samples were placed in a salt-fog cabinet where they were exposed to a 5-percent salt-spray solution until failure. It was determined from the results obtained that certain combinations of materials provide excellent protection, while other combinations provide very poor protection.

**SUBJECT: UNITED NATIONS RECOMMENDED PERFORMANCE TESTING OF
HAZARDOUS MATERIALS PACKAGINGS FOR CAMP LEJUENE**

PROJECT: TE 13-92

Mar 1993

ABSTRACT:

With the 1 January 1991 change in the regulations pertaining to the international transportation of hazardous materials (HAZMAT), it is necessary for DOD activities to obtain the performance testing for the packaging configurations for which they are responsible. The purpose of this project was to provide performance testing and test documentation for lithium battery configurations, as originally requested by Camp Lejuene. After coordination with a newly appointed point of contact at Camp Lejuene, it was determined that the large scale testing program which had been planned would not be required. The only configuration to be tested was a vendor packaging of lithium batteries. Subpart M of part II, 49 CFR, as well as chapter 9 of the United Nations Recommendations on the Transport of Dangerous Goods, known as the Orange Book, served as the reference documents prescribing which tests were to be performed for the packagings and/or the hazardous commodities. Testing procedures were prescribed by ASTM D 4919, in accordance with procedures outlined in appendix F of AMCPSCC project report AMC 13-88. Test

documented using the designated report format that had been adopted for this specific testing program. The Camp Lejeune approved test report was forwarded to DLA's central manager for HAZMAT for inclusion in the DOD PC performance oriented packaging (POP) III database.

SUBJECT: EVALUATION OF VOLATILE CORROSION INHIBITOR PRODUCTS AND TEST METHODS USING THERMAL ANALYSIS TECHNIQUES

PROJECT: TE-LS-20-92

Apr 1993

ABSTRACT:

A study was undertaken to determine if thermal analysis techniques can be used in the evaluation of volatile corrosion inhibitor products. Differential scanning calorimetry (DSC) was used throughout this evaluation. It was concluded from this study that DSC can be used in this evaluation; however, it must be done at the sub-ambient level because of the extreme volatility of the corrosion inhibitor.

SUBJECT: BIODEGRADABLE CLEANER/DEGREASER TESTING

PROJECT: TE-LS-31-92

Aug 1993

ABSTRACT:

This project was conducted to determine the performance characteristics of a number of biodegradable cleaners and degreasers currently provided in a supply schedule maintained by the General Services Administration (GSA). The characteristics determined were corrosion and cleaning efficiency. Testing methodology used was that developed in AMCPSCC assignment report TE-LS-16-88 (Evaluation of Commercial Cleaning Compounds for DLA) and AMCPSCC assignment report TE-LS-92-89 (Evaluation of a Substitute Cleaning Compound for Use in MIL-P-116 Cleaning Applications). It was determined from the results obtained that the evaluated cleaners and degreasers have potential use in military cleaning applications as substitutes for ozone-depleting substances such as the chlorinated hydrocarbon solvents currently in use. Further action will be taken in preparing a commercial item description to facilitate future procurements.

**SUBJECT: UNITED STATES ARMY TRAINING AND DOCTRINE COMMAND
STORAGE SPACE REPORTING ASSISTANCE**

PROJECT: TD 35-92

Apr 1993

ABSTRACT:

The purpose of this project was to provide storage space reporting assistance throughout the U.S. Army Training and Doctrine Command (TRADOC). This has been accomplished through on-site visits by representatives of LOGSA PSCC to each of the TRADOC installations reporting storage space. As a part of this effort, PSCC-developed storage space reporting software was presented and demonstrated during each visit.

SUBJECT: FORT BELVOIR, VA - INDUSTRIAL PARK FINAL DESIGN

PROJECT: TD 50-92

Nov 1992

ABSTRACT:

This project provided a review of design drawings for the Defense Supply Service - Washington (DSS-W) and the U.S. Army Engineer Activity Capital Area buildings in the proposed Fort Belvoir Industrial Park. The drawings were reviewed for agreement with operations layouts previously designed by LOGSA PSCC. Comments involved improvements to loading dock areas, the omission of cargo and personnel doors, reduction of available storage space, and potential heating and ventilation deficiencies.

**SUBJECT: CHERRY POINT, NC - RELOCATION OF PRESERVATION AND
PACKAGING OPERATIONS**

PROJECT: TD 52-92

Oct 1992

ABSTRACT:

This project was established at the request of DLA Defense Depot Cherry Point, NC (DDCN). The purpose of this request was to provide operations layout assistance and packaging guidance for the relocation of P&P operations to DLA building 159. LOGSA PSCC accomplished this request by providing packaging guidance and developing an operations layout that enhances materiel flow patterns and minimizes materials handling requirements. These

layouts were accepted by DDCN management as being a plan that would improve their P&P operations. This report includes an equipment requirements list with cost estimates and suggested equipment suppliers.

SUBJECT: HAZARDOUS MATERIALS STORAGE/TYPICAL UNITS SPACE
DETERMINATION, PHASE II

PROJECT: TD 53-92

Sep 1993

ABSTRACT:

This project was undertaken to develop typical unit and installation storage space requirements for HAZMAT storage modernization at the retail level. This is the second phase of a two phase project and included visits to three U.S. Army Forces Command installations. Forts Bragg, Carson, and Stewart were selected based on the type of active Army units that are resident there. Data from the above forts (Bragg and Stewart) and Forts Gordon and Drum (from Phase I) were processed through the HAZMAT database and then through the Determination of Storage Space Requirements model to ascertain the amount and size of openings required for segregated sizes for various FORSCOM and TRADOC installations in support of Military Construction, Army project initiations.

SUBJECT: SUPPLIERS OF PACKAGING MATERIALS AND EQUIPMENT

PROJECT: TP 54-92

Nov 1992

ABSTRACT:

This project updates the on-going LOGSA PSCC effort of providing a listing of manufacturers and distributors for various packaging materials used for protecting Department of the Army (DA) items. The need for this information arose primarily when the Defense Contract Management Command interfaces with private industry sources of supply in the acquisition of prescribed packaging materials for DA items. A secondary need exists at DOD depots and DA troop installations that perform packaging operations. It should be noted that established sources of supply (i.e., DOD/GSA stocked or supply schedule) usually satisfy this secondary need. However, when a local purchase of packaging materials is necessary, the information contained in this project will assist in packaging materials procurement.

SUBJECT: DEFENSE SUPPLY SERVICE - WASHINGTON, GENERAL WASHINGTON
DRIVE FACILITY

PROJECT: TD 55-92

Oct 1992

ABSTRACT:

This project provided a supply operations layout design for the new DSS-W facility located at General Washington Drive, Fairfax, VA. The proposed design will maximize storage space utilization and provide optimum materiel flow for DSS-W's furniture and office supply operations. The design package was accepted by DSS-W and was implemented in late November 1992 with LOGSA PSSC's assistance.

SUBJECT: UNITED NATIONS RECOMMENDED PERFORMANCE TESTING OF
HAZARDOUS MATERIALS PACKAGINGS FOR THE STRATEGIC
WEAPONS FACILITY ATLANTIC - PAINT CAN CONFIGURATIONS

PROJECT: TE 63-92

Dec 1992

ABSTRACT:

With the 1 January 1991 change in the regulations pertaining to the international transportation of HAZMAT, it was necessary for DOD activities to obtain the performance testing for the packaging configurations for which they were responsible. The purpose of this project was to provide performance testing and test documentation, as requested by the Strategic Weapons Facility Atlantic, for paint can configurations. Plastic rings were supplied and were intended to be used to meet the internal pressure requirements of air transportation. If the rings had successfully passed the internal pressure test, the entire configuration would have undergone the complete series of performance tests. Chapter 9 of the United Nations Recommendations on the Transport of Dangerous Goods, known as the Orange Book, served as the reference document prescribing which tests were to be performed for the packagings and/or the hazardous commodities. Testing procedures were prescribed by ASTM D 4919, in accordance with procedures outlined in appendix F of AMCPSCC project report AMC 13-88. Test results were documented using the designated report format that had been adopted for this specific testing program. The results of pressure testing the paint cans with plastic rings applied to the lids were inconsistent. The use of the rings is only to be at the direction of the POP representative for each service and agency.

SUBJECT: FORT CARSON - STORAGE PLANNING ASSISTANCE

PROJECT: TD 66-92

Mar 1993

ABSTRACT:

This project was established at the request of the Division Materials Management Center (DMMC), Fort Carson, CO. It provides assistance to the DMMC in designing supply operation layouts which will improve materiel flow, maximize cube utilization, and enhance operational effectiveness. This report includes storage layouts, an equipment requirement list, sources of supply, and recommendations for improving storage operations. Subsequent to the development and acceptance of the storage modernization plan, year-end funding was provided for project implementation. Purchase descriptions for the equipment required were furnished by LOGSA PSCC, and implementation of the plan was executed.

SUBJECT: AMMUNITION STORAGE SPACE REPORTING SEMINAR

PROJECT: TD 67-92

Nov 1992

ABSTRACT:

This project was established at the request of AMCCOM to present a seminar on ammunition storage space management reporting. The seminar was held 11-12 August 1992 at Rock Island Arsenal, Rock Island, IL, with representatives from AMCCOM, the U.S. Army Depot Systems Command (DESCOM), and the U.S. Army Systems Integration and Management Activity in attendance. Instructions for completing the revised DD Form 805 (Storage Space Management Report (SSMR)) and the Joint Ordnance Commanders Group Storage Manager's Handbook Report, guidance for compilation of cubic data, and details of the personal computer-based input format for SSMR were addressed.

SUBJECT: MILITARY DISTRICT OF WASHINGTON STORAGE SPACE
REPORTING ASSISTANCE

PROJECT: TD 85-92

Nov 1992

ABSTRACT:

The purpose of this project was to provide storage space management reporting assistance to the Military District of Washington (MDW). This has been accomplished through research of previous SSMRs and on-site visits to Forts McNair and Belvoir in order to review and update current reporting practices with MDW personnel.

SUBJECT: FORT LEE, VA - RECEIVING/SHIPPING OPERATIONS LAYOUT

PROJECT: TD 89-92

Nov 1992

ABSTRACT:

This project was established at the request of the Directorate of Logistics (DOL), Fort Lee, VA. The purpose of this request was to develop a distribution layout for the Central Receiving Point (CRP) at Fort Lee. LOGSA PSCC accomplished this request by providing a distribution layout which maximized efficiency by incorporating appropriate materials handling equipment (MHE) and storage aids. This layout will meet CRP's present demands as well as future requirements. This report includes an operations layout, an equipment requirements list, and sources of supply for equipment.

SUBJECT: REVISION OF AMC-R 700-1

PROJECT: TD 93-92

Nov 1992

ABSTRACT:

This project provided a rewrite of AMC-R 700-1, Logistics Packaging, Storage, and Transportation Field Support Program. The recent consolidation of wholesale-level DOD Supply Operations and the reorganization of AMC activities have resulted in mission and function changes which affect the current policy prescribed in this regulation. In addition, LOGSA PSCC recommended, and HQ AMC approved, changing the name of the program, effective 1 October 1992.

SUBJECT: DEPARTMENT OF DEFENSE MILITARY PACKAGING
SIMPLIFICATION STUDY RECOMMENDATIONS - MIL-STD-2073-1/2

PROJECT: TP 94-92

Apr 1993

ABSTRACT:

The DOD Military Packaging Simplification Study (MPSS) recommendations involve changes to MIL-STD-2073-2, Packaging Requirement Codes. The Defense Packaging Policy Group directed that MPSS-related drafts of MIL-STD-2073 documents be reviewed by the ad hoc team for conformance to MPSS requirements. This

project was initiated to document the Army's participation in the review effort. As a result of the findings of the ad hoc team, the documents were returned to the Naval Air Weapons Center (NAWC) (preparing activity) for addition of missing MPSS requirements and elimination of all portions, added by NAWC, which require revision to automatic data processing systems throughout DOD.

SUBJECT: UNITED NATIONS RECOMMENDED PERFORMANCE
TESTING OF HAZARDOUS MATERIALS PACKAGINGS FOR
THE SAVANNA ARMY DEPOT - BATTERY PACKAGINGS

PROJECT: TE 95-92

Oct 1992

ABSTRACT:

With the 1 January 1991 change in the regulations pertaining to the international transportation of HAZMAT, it was necessary for DOD activities to obtain the performance testing for the packaging configurations for which they were responsible. The purpose of this project was to provide performance testing and test documentation, as requested by the Savanna Army Depot (SVDA), for lithium batteries. The boxes were configured in accordance with specific instructions from SVDA and using the materials supplied. Actual lithium batteries were used. Chapter 9 of the United Nations Recommendations on the Transport of Dangerous Goods, known as the Orange Book, served as the reference document prescribing which tests were to be performed for the packagings and/or the hazardous commodities. Testing procedures were prescribed by ASTM D 4919, in accordance with procedures outlined in appendix F of AMCPSCC project report AMC 13-88. Test results were documented using the designated report format that had been adopted for this specific testing program.

SUBJECT: U.S. ARMY ENGINEER DISTRICT MOBILE, DISTRIBUTION
PLANNING ASSISTANCE

PROJECT: TD 111-92

Jan 1993

ABSTRACT:

This project was established at the request of the U.S. Army Corps of Engineers, Mobile District (USACEMD), Mobile, AL. The purpose of this request was to assist in the design of a distribution facility to be included in a GSA construction project to consolidate USACEMD operations into a single complex. LOGSA PSCC

accomplished this request by assisting in the derivation of sizing requirements and development of an operations layout which maximizes cube utilization and incorporates appropriate MHE and storage aids. In addition, a list of basic facility requirements was developed. These requirements were accepted by USACEMD management and incorporated into the Solicitation for Offer package developed by GSA to accommodate construction of the complex. This report includes an operations layout, an equipment requirements list, and sources of supply for equipment.

SUBJECT: STORAGE SPACE REPORTING ASSISTANCE TO DEFENSE
LOGISTICS AGENCY

PROJECT: TD 112-92

Dec 1992

ABSTRACT:

This project was established at the request of DLA Depot Operations Support Office (DOSO) to provide assistance in preparing SSMRs for the period ending 30 June 1992. Center personnel provided the on-site assistance during mid-September 1992.

SUBJECT: UNITED NATIONS RECOMMENDED PERFORMANCE TESTING OF
HAZARDOUS MATERIALS PACKAGINGS FOR THE U.S. DEPARTMENT
OF TRANSPORTATION - PLASTIC BAGS

PROJECT: TE 113-92

Nov 1992

ABSTRACT:

With the 1 January 1991 change in the regulations pertaining to the international transportation of HAZMAT, it was necessary for shipping activities to obtain the performance testing for the packaging configurations for which they were responsible. For the transportation of hazardous liquids by air, the packaging must be capable of maintaining a specified internal pressure. In an effort to minimize cost and still have a safe package, packaging designers have utilized specialized plastic bags. Before making a ruling as the U.S. Competent Authority, the U.S. Department of Transportation (DOT) requested a variety of pressure tests. DOT will use the results to determine a U.S. position concerning the use of bags. Tests results were documented using the designated report format that had been adopted for this specific performance testing program. The test data were restricted to use by DOT only.

SUBJECT: DEFENSE SUPPLY SERVICE - WASHINGTON, INTERSTATE PLAZA
IMPLEMENTATION ASSISTANCE

PROJECT: TD 1-93

Feb 1993

ABSTRACT:

This project provided supply operations layout implementation assistance for the new DSS-W facility located at Interstate Plaza, General Washington Drive, Fairfax, VA. The layout design will maximize storage space utilization and provide optimum materiel flow for DSS-W's furniture and office supply operations while using available forklift trucks and storage aids and conforming to allowable floor load limits. Implementation was accomplished by DSS-W personnel with technical assistance from LOGSA PSCC.

SUBJECT: FORT BLISS, SUPPLY MODERNIZATION PLAN, IMPLEMENTATION
ASSISTANCE

PROJECT: TD 2-93

Sep 1993

ABSTRACT:

This project was established at the request of the Directorate of Installation Support (DIS), Fort Bliss, TX. It provides assistance to DIS in updating and finalizing a design for supply utilization, and enhance operational effectiveness. This report includes a storage layout, storage space requirement list, and sources of supply for equipment. Purchase descriptions for the required equipment were also developed by LOGSA PSCC and are included in this report.

SUBJECT: FORT CARSON, DIRECTORATE OF LOGISTICS, STORAGE
PLANNING ASSISTANCE

PROJECT: TD 15-93

Apr 1993

ABSTRACT:

This project was established at the request of the DOL at Fort Carson, CO. It provides assistance to DOL in analyzing the requirements for specialized MHE, suitability of existing storage racks, and any other specialized equipment for operation in the warehouse near the Colorado Springs airport. This report includes a storage and materials handling survey, storage layout, equipment requirement list, and sources of supply for improving storage operations.

SUBJECT: UNITED NATIONS RECOMMENDED PERFORMANCE TESTING OF
HAZARDOUS MATERIALS PACKAGINGS FOR THE DEFENSE
LOGISTICS AGENCY - COMMON USE PACKAGINGS: PHASE VI

PROJECT: TE 16-93

Mar 1993

ABSTRACT:

With the 1 January 1991 change in the regulations pertaining to the international transportation of HAZMAT, it is necessary for DOD activities to obtain the performance testing for the packaging configurations for which they are responsible. The purpose of this project was to provide performance testing and test documentation, as requested by DLA's central manager for HAZMAT. This project was the sixth in a series of projects to accommodate the testing requested by DLA on a continuing basis. A vendor packaged configuration for lithium batteries and two fiberboard box configurations for solids were performance tested. Subpart M of part II, 49 CFR, as well as chapter 9 of the United Nations Recommendations on the Transport of Dangerous Goods, known as the Orange Book, served as the reference documents prescribing which tests were to be performed for the packagings and/or the hazardous commodities. Testing procedures were prescribed by ASTM D 4919, in accordance with procedures outlined in appendix F of AMCPSCC project report AMC 13-88. Test results were documented using the designated report format that had been adopted for this specific testing program.

SUBJECT: A GUIDE TO NONTRADITIONAL STORAGE FACILITIES AND
STRUCTURES

PROJECT: TD 17-93

Jul 1993

ABSTRACT:

The nontraditional storage facilities and structures report, developed as a result of this project, provides a guide to nontraditional structures that are available on the market today. These structures can be used for the storage of general supplies, major items such as tanks and aircraft, HAZMAT, and other commodities. They are a less costly alternative to conventional brick-and-mortar type general supply storage facilities. The guide can be used by Army users and by personnel conducting modernization studies to provide a general overview of different types of nontraditional structures available and their application to the storage of general supplies and major items such as tanks and aircraft, HAZMAT, and other commodities.

SUBJECT: ARMY STORAGE OPERATIONS PROGRAM INFORMATION
BOOKLET

PROJECT: TD 18-93

Mar 1993

ABSTRACT:

This project was developed to update and publish the information booklet on the Army Storage Operations Program. The booklet consists of illustrations and narratives covering the functions and missions of storage operations. It can be used for briefings or as handouts for visiting officials, Customer Field Support Program visits, and part of orientation of personnel newly assigned to the Center.

SUBJECT: UNITED NATIONS RECOMMENDED PERFORMANCE TESTING OF
HAZARDOUS MATERIALS PACKAGINGS FOR THE U.S. ARMY
FOREIGN SCIENCE AND TECHNOLOGY CENTER - AMMUNITION
CONTAINERS

PROJECT: TE 19-93

Jan 1993

ABSTRACT:

With the 1 January 1991 change in the regulations pertaining to the international transportation of HAZMAT, and subsequent implementation of similar regulations for domestic transportation, it is necessary for DOD activities to obtain the performance testing for the packaging configurations for which they are responsible. The purpose of this project was to provide performance testing and test documentation, as requested by the Foreign Systems Division (FSD), Army Foreign Science and Technology Center. This project was the first in a series of projects to accommodate the testing requested by FSD on a continuing basis as boxes of foreign origin become available for use to transport ammunition, also of foreign origin. Subpart M of part II, 49 CFR, as well as chapter 9 of the United Nations Recommendations on the Transport of Dangerous Goods, known as the Orange Book, served as the reference documents prescribing which tests were to be performed for the packagings. Without having the commodities specifically identified, Packing Group II was selected as the level of testing that would provide the greatest applicability. Testing procedures were prescribed by ASTM D 4919, in accordance with procedures outlined in appendix F of AMCPSCC project report AMC 13-88. Test results were documented using the designated report format that had been adopted for this specific testing program. The FSD-approved test reports were forwarded to DLA's central manager for HAZMAT for eventual inclusion in the DOD PC POP III database. At this time, the

boxes are not identified by any reference code such that test data can be retrieved from the database.

SUBJECT: PACKAGING SUPPORT TO FORT CARSON - STANDARD OPERATING
PROCEDURE FOR REPARABLES

PROJECT: TP 21-93

Mar 1993

ABSTRACT:

This project was initiated as a result of a request for assistance from Fort Carson's DOL. The result of the project is a standard operating procedure for the packaging and marking of class IX, repair parts (less medical), being turned in for repair.

SUBJECT: FORT CAMPBELL, PUBLICATIONS WAREHOUSE PLANNING
ASSISTANCE

PROJECT: TD 24-93

Jun 1993

ABSTRACT:

This project was established at the request of the U.S. Army Publications and Printing Command. It provides assistance to the Directorate of Information Management at Fort Campbell, KY, in designing a storage operation layout which will improve materiel flow, optimize the use of storage space, and enhance operational effectiveness. This report includes a storage and materials handling survey checklist, a proposed storage layout, an equipment requirement list, and sources of supply for equipment required to improve storage operations.

SUBJECT: UPDATE OF "PACKAGING - THE BASICS" BOOKLET

PROJECT: TP 25-93

Mar 1993

ABSTRACT:

This project provides a complete revision of "Packaging - The Basics." The information contained in the booklet serves as a guide to the soldier in the field involved in the packaging of retrograde and other materiel. Changes have been made to 60 of the 124 pages in the booklet in order to provide the most up-to-date packaging information available. Information was obtained from various current Government documents for the verification of booklet contents including packaging materials, equipment, and processes applicable to unit-level operations.

SUBJECT: PERSONAL PROPERTY SHIPPING CONTAINER SEALS

PROJECT: TE-LS-26-93

Apr 1993

ABSTRACT:

LOGSA PSCC received a request from the Military Traffic Management Command, Europe, to look into the possibility of providing a low-cost, accountable label seal that would allow for the detection of tampering to DOD personal property containers. The current seal does not provide enough strength, flexibility, and adhesiveness when affixed to wood and triplewall containers to detect tampering. After surveying the market with negative results, PSCC decided to conduct laboratory tests on common materials which can be converted to tamper-evident seals. Results demonstrated that a nylon reinforced seal was more than three times stronger in tensile strength, more than two times resistant to puncture, and more than three times resistant to tear than the presently used seal.

SUBJECT: UNITED NATIONS RECOMMENDED PERFORMANCE TESTING OF
HAZARDOUS MATERIALS PACKAGINGS FOR THE NAVAL AIR
STATION, WILLOW GROVE: FIBERBOARD BOXES FOR SOLIDS -
PHASE I

PROJECT: TE 27-93

Mar 1993

ABSTRACT:

With the 1 January 1991 change in the regulations pertaining to the international transportation of HAZMAT, and subsequent implementation of similar regulations for domestic transportation, it was necessary for DOD activities to obtain the performance testing for the packaging configurations for which they were responsible. The purpose of this project was to provide performance testing and test documentation, as requested by the Naval Air Station (NAS) Willow Grove, for fiberboard boxes to be used to ship solids. The boxes were configured and packed by NAS Willow Grove. A 9-gallon MS27684 drum configured for 1-quart glass fuel sample bottles was also packed and provided. Subpart M of part II, 49 CFR, as well as chapter 9 of the United Nations Recommendations on the Transport of Dangerous Goods, known as the Orange Book, served as the reference documents prescribing which tests were to be performed for the packagings and/or the hazardous commodities. Testing procedures were prescribed by ASTM D 4919, in accordance with procedures outlined in appendix F of AMCPSCC project report AMC 13-88. Test results were documented using the designated report format that had been adopted for this specific testing program. The NAS Willow Grove approved test reports were forwarded to DLA's central manager for

HAZMAT for inclusion in the DOD PC POP III database. The use of grade V3c fiberboard in lieu of grade W5c was recommended. The contoured foam pads used in the drum were not sufficient protection to prevent the glass fuel sample bottles from breaking. The use of vermiculite was recommended.

SUBJECT: ARMY STORAGE SPACE ANALYSIS

PROJECT: TD 28-93

Apr 1993

ABSTRACT:

The availability of ample storage space is always of concern to DA. The potential impact on storage space due to the closure and realignment of installations makes this concern even greater. Almost all installations included in this analysis report storage shortfalls. Even if vacant space exists at these installations, it cannot sufficiently overcome these shortfalls. Space gained through cross-service or interservice support agreements with other installations cannot overcome this problem. Efficient space utilization can be achieved through rewarehousing; however, the storage space gained will not alleviate the shortfall. Substantial gains are also unlikely, even when more aggressive storage management actions are used. The most probable solution to alleviating overcrowded conditions is through additional storage space realized through facility construction or lease.

SUBJECT: INTERNAL CONTROL REVIEW CHECKLIST ON SHELF-LIFE ITEMS

PROJECT: TD 30-93

May 1993

ABSTRACT:

As a result of internal management control (IMC), weaknesses identified by the Office of the Inspector General, LOGSA PSCC AMC Executive Agent for all shelf-life matters, prepared an Internal Control Review checklist for the control of shelf-life items. This checklist, which was coordinated with the AMC major subordinate commands, the AMC Catalog Data Activity, and the AMC Materiel Readiness Support Activity, will be forwarded to the AMC IMC representative for publication in the next update of the DA circular on ICR checklists.

**SUBJECT: UNITED NATIONS RECOMMENDED PERFORMANCE TESTING OF
HAZARDOUS MATERIALS PACKAGINGS FOR THE U.S. ARMY
MISSILE COMMAND - HELLFIRE WARHEADS**

PROJECT: TE 31-93

Feb 1993

ABSTRACT:

With the 1 January 1991 change in the regulations pertaining to the international transportation of HAZMAT, and subsequent implementation of similar regulations for domestic transportation, it is necessary for DOD activities to obtain the performance testing for the packaging configurations for which they are responsible. The purpose of this project was to provide performance testing and test documentation for a wirebound, plywood ammunition packing box, conforming to MIL-B-2427, and a cleated plywood box, conforming to PPP-B-601, style A. The boxes were used to pack HELLFIRE warheads for domestic shipment. Subpart M of part II, 49 CFR, as well as chapter 9 of the United Nations Recommendations on the Transport of Dangerous Goods, known as the Orange Book, served as the reference documents prescribing which tests were to be performed for the packagings and/or the hazardous commodities. Testing procedures were prescribed by ASTM D 4919, in accordance with procedures outlined in appendix F of AMCPSCC project report AMC 13-88. Test results were documented using the designated report format that had been adopted for this specific testing program. The AMC-approved test reports were forwarded to DLA's central manager for HAZMAT for inclusion in the DOD PC POP III database.

**SUBJECT: UNITED NATIONS RECOMMENDED PERFORMANCE TESTING OF
HAZARDOUS MATERIALS PACKAGINGS FOR THE U.S. ARMY
FOREIGN SYSTEMS DIVISION - FOREIGN AMMUNITION
CONTAINERS: PHASE II**

PROJECT: TE 33-93

Sep 1993

ABSTRACT:

With the 1 January 1991 change in the regulations pertaining to the international transportation of HAZMAT, and subsequent implementation of similar regulations for domestic transportation, it is necessary for DOD activities to obtain the performance testing for the packaging configurations for which they are responsible. The purpose of this project was to provide performance testing and test documentation, as requested by FSD, Army Foreign Science and Technology Center. This project was the second in a series of projects to accommodate the testing requested by FSD on a continuing basis, as FED-SPEC wood boxes

(PPP-B-601 and PPP-B-621) and boxes of foreign origin become available for use to transport foreign ammunition. Subpart M of part II, 49 CFR, as well as Chapter 9 of the United Nations Recommendations on the Transport of Dangerous Goods, known as the Orange Book, served as the reference documents prescribing which tests were to be performed for the packagings. Without having the commodities specifically identified, Packaging Group II was selected as the level of testing that would provide the greatest applicability. Testing procedures were prescribed by ASTM D 4919, in accordance with procedures outlined in appendix F of AMCPSCC project report AMC 13-88. Test results were documented using the designated report format that had been adopted for this specific testing program. It was recommended that additional strapping be used around the ends of the FED-SPEC boxes when packaging projectiles. The FSD-approved test reports were forwarded to DLA's central manager for HAZMAT for eventual inclusion in the DOD PC POP III database. At this time, the boxes are not identified by any reference code such that test data can be retrieved from the database.

SUBJECT: 801ST MAINTENANCE BATTALION, DISTRIBUTION PLANNING ASSISTANCE

PROJECT: TD 35-93

Aug 1993

ABSTRACT:

The purpose of this project was to provide distribution planning assistance to relocate class IX operations to a new facility being constructed for the 801st Maintenance Battalion (MB), Fort Campbell, KY. The project provided a storage layout for the Main Supply Support Area, C Company, 801st MB. The project also recommended the acquisition of modern MHE and storage aids to improve materials handling efficiency and storage space utilization.

SUBJECT: RECEIPT AND ISSUE TRANSACTION DATABASE ENHANCEMENT

PROJECT: TD 36-93

Aug 1993

ABSTRACT:

This project was undertaken to develop a system change request (SCR) to enhance the Workload Forecast/Decision Support System's (WF/DSS) capabilities by providing for changes to the receipt and issue transaction (RIT) database. The enhancements would allow the WF/DSS and the RIT database to be used as the premier forecasting and reporting instruments for all DOD NICP.

After the development of the required changes, HQ AMC decided to prepare and submit the SCR to provide higher visibility. The requirements developed in this project became the basis for the SCR.

SUBJECT: STORAGE SPACE REPORTING ASSISTANCE TO REDSTONE ARSENAL
SUPPORT ACTIVITY

PROJECT: TD 41-93

Jul 1993

ABSTRACT:

This project was established at the request of the Director of Engineering and Housing (DEH), Redstone Arsenal Support Activity (RASA), Huntsville, AL. LOGSA PSCC storage space review team assisted RASA personnel in the preparation of SSMR. The LOGSA PSCC team instructed RASA personnel how to prepare the SSMR and on how to input SSMR data into the 805 software developed by LOGSA PSCC. The 805 software has built-in edit checks that will assist RASA personnel in preparing the SSMR.

SUBJECT: FORT RILEY, KS - TROOP ISSUE SUBSISTENCE ACTIVITY
FACILITY

PROJECT: TD 42-93

Aug 1993

ABSTRACT:

This project was established at the request of Fort Riley Supply and Services Division, Fort Riley, KS. The purpose of this request was to assist in the design of a Troop Issue Subsistence Activity (TISA) facility using the TISA standard design. LOGSA PSCC accomplished this request by verifying sizing requirements and developing an operations layout which maximizes cube utilization and incorporates appropriate MHE and storage aids. The layout, which maximizes cube utilization and storage aids, was accepted by Fort Riley's management and submitted to the U.S. Army Corps of Engineers Kansas City District for inclusion in the design package. This report includes an operations layout, an equipment requirements list, and sources of supply for equipment.

SUBJECT: STORAGE WORKSHOP FOR RETAIL LEVEL ACTIVITIES

PROJECT: TD 45-93

Aug 1993

ABSTRACT:

The implementation of base closure and realignment will require the redistribution of storage materiel among the remaining installations. This project developed a retail-level storage workshop to facilitate the storage of transferred materiel and provided pertinent information on related topics that impact the U.S. Army storage mission.

SUBJECT: EVALUATION OF MOLDABLE SELF-ADHERING BARRIER MATERIAL

PROJECT: TE-LS-47-93

Sep 1993

ABSTRACT:

A study was performed by LOGSA PS CC at the request of the manufacturer to determine if their product has military application in providing adequate corrosion protection to ferrous metal surfaces. It was concluded from the materials and environmental evaluations conducted that the product could be utilized under favorable storage and warehousing conditions.

SUBJECT: TESTING OF EXPENDABLE CORRUGATED PAPER PALLETS

PROJECT: TE-LS-48-93

Aug 1993

ABSTRACT:

Fifteen expendable, corrugated paper pallets manufactured from used, corrugated fiberboard were subjected to material handling, vibration, superimposed load, and high temperature/humidity testing. Based on the test results, it was determined that the pallets are not suitable for use in the military supply system.

SUBJECT: U.S. ARMY SOUTHERN COMMAND PACKAGING OPERATION

PROJECT: TD 50-93

Aug 1993

ABSTRACT:

This project was established at the request of the Commanding General, U.S. Army South, Fort Clayton, Republic of Panama. Assistance was provided in developing a P&P plan to accommodate

the theater drawdown required by the Panama Canal Treaty Implementation Plan. This report includes personnel, supplies, equipment, publications, lumber, lumber storage, and facility modifications requirements and an operations layouts, sources of supply for equipment, and a flow chart for P&P operations.

SUBJECT: UNITED NATIONS RECOMMENDED PERFORMANCE TESTING OF
HAZARDOUS MATERIALS PACKAGINGS FOR THE DEFENSE
LOGISTICS AGENCY - COMMON USE PACKAGINGS: PHASE VII

PROJECT: TE 52-93

Sep 1993

ABSTRACT:

With the 1 January 1991 change in the regulations pertaining to the international transportation of HAZMAT, it is necessary for DOD activities to obtain the performance testing for the packaging configurations for which they are responsible. After two years, the tests for combination packagings must be performed again, so that the configuration can be recertified. The purpose of this project was to provide performance testing/retesting and test documentation, as requested by DLA's central manager for HAZMAT. This project was the seventh in a series of projects to accommodate the testing requested by DLA on a continuing basis. The configurations included combination packagings utilizing either fiberboard boxes or MIL-SPEC steel drums as the outer packaging. All testing was conducted according to the parameters for Packing Group I items. A dustless alternative to vermiculite was used in the packagings, with no notable difference in test results. The metal inner packagings are not the same specification as tested originally, and more damage was noted. Some cans failed the drop test, leading to a redesign of the configuration. Subpart M of part II, 49 CFR, as well as chapter 9 of the United Nations Recommendations on the Transport of Dangerous Goods, known as the Orange Book, served as the reference documents prescribing which tests were to be performed for the packagings and/or the hazardous commodities. Testing procedures were prescribed by ASTM D 4919, in accordance with procedures outlined in appendix F of AMCPSCC project report AMC 13-88. Test results were documented using the designated report format that had been adopted for this specific testing program.

SUBJECT: FORT GILLEM STORAGE SPACE ASSISTANCE

PROJECT: TD 64-93

Jul 1993

ABSTRACT:

The purpose of this project was to provide storage space management reporting assistance to Fort Gillem, GA. This has been accomplished through research of previous SSMRs and an on-site visit to Fort Gillem in order to review and update current reporting practices with DEH personnel.

SUBJECT: UNITED NATIONS RECOMMENDED PERFORMANCE TESTING OF
HAZARDOUS MATERIALS PACKAGINGS FOR THE U.S. ARMY
MISSILE COMMAND - MARK 241, MOD 2 CONTAINER

PROJECT: TE 66-93

Jul 1993

ABSTRACT:

With the 1 January 1991 change in the regulations pertaining to the international transportation of HAZMAT, and subsequent implementation of similar regulations for domestic transportation, it is necessary for DOD activities to obtain the performance testing for the packaging configurations for which they are responsible. The purpose of this project was to provide performance testing and test documentation for an MK 241 MOD 2 container and a reusable PPP-B-601 wood box. The MK 241 MOD 2 container was for a Chaparral missile guidance section, while the PPP-B-601 wood box was for a cylindrical solid (278 lb gross). Subpart M of part II, 49 CFR, as well as chapter 9 of the United Nations Recommendations on the Transport of Dangerous Goods, known as the Orange Book, served as the reference documents prescribing which tests were to be performed for the packagings and/or the hazardous commodities. Testing procedures were prescribed by ASTM D 4919, in accordance with procedures outlined in appendix F of AMCPSCC project report AMC 13-88. Test results were documented using the designated report format that had been adopted for this specific testing program. The AMC-approved test reports were forwarded to DLA's central manager for HAZMAT for inclusion in the DOD PC POP III database.

**SUBJECT: UNITED NATIONS RECOMMENDED PERFORMANCE TESTING OF
HAZARDOUS MATERIALS PACKAGINGS FOR NELLIS AIR FORCE
BASE - FUEL CANS**

PROJECT: TE 69-93

Jul 1993

ABSTRACT:

With the 1 January 1991 change in the regulations pertaining to the international transportation of HAZMAT, and subsequent implementation of similar regulations for domestic transportation, it was necessary for DOD activities to obtain the performance testing for the packaging configurations for which they were responsible. The purpose of this project was to provide performance testing and test documentation, as requested by Nellis Air Force Base (AFB) for 1-gallon fuel sample cans conforming to DOT 17C and DOT 17E. Subpart M of part II, 49 CFR, as well as chapter 9 of the United Nations Recommendations on the Transport of Dangerous Goods, known as the Orange Book, served as the reference documents prescribing which tests were to be performed for the packagings and/or the hazardous commodities. Testing procedures were prescribed by ASTM D 4919, in accordance with procedures outlined in appendix F of AMCPSCC project report AMC 13-88. Test results were documented using the designated report format that had been adopted for this specific testing program. The Nellis AFB-approved test reports were forwarded to DLA's central manager for HAZMAT for inclusion in the DOD PC POP III database. When the cans did not pass the hydrostatic test, a requirement for the cans to be shipped as single containers, a combination packaging utilizing a fiberboard box as an outer packaging was configured. This design offered an alternative for shipping the fuel sample cans. A dustless alternative to vermiculite was used in the combination packaging.

SUBJECT: STORAGE SPACE REVIEW AT NAVAJO ARMY DEPOT ACTIVITY

PROJECT: TD 76-93

Sep 1993

ABSTRACT:

This project was established at the request of the Chief, Inventory Management Division, Navajo Army Depot Activity (NADA), Bellemont, AZ. The LOGSA PSCC storage space review team assisted NADA personnel in the preparation of the final (close out) SSMR. The PSCC team instructed NADA personnel on how to prepare the final SSMR and on how to input SSMR data into the 805 software developed by LOGSA PSCC. NADA was identified by the Base Realignment and Closure I (BRAC) for closure and is

scheduled to complete BRAC requirements for distribution of ammunition by the end of September 1993, at which time they will complete transition to the Arizona Army National Guard.

SUBJECT: RESERVE STORAGE ACTIVITY, HYTHE, POLICY/PROCEDURAL ASSISTANCE

PROJECT: TD 77-93

Sep 1993

ABSTRACT:

This project was undertaken to review the supply operations at the Reserve Storage Activity, Hythe (RSAH), United Kingdom (UK), for productivity enhancement in conjunction with modernization of their storage facilities. An on-site survey was taken and workflow charts developed. Supply data automation was also reviewed and HQ DESCOM has taken over the action on a permanent software system. Suggested improvements to the workflow processes were developed and staffed with the Commander, RSAH, for future implementation with the modernization plan.

SUBJECT: DEVELOPMENT OF HAZARDOUS MATERIALS COURSES TO MEET HM-126 REQUIREMENTS

PROJECT: TP 78-93

Sep 1993

ABSTRACT:

The purpose of this project was to develop two courses which meet the new HAZMAT employee training requirements set forth in Docket HM-126F of the CFR. One course has as its core SMPT-5, Hazardous Materials Handling, and satisfies the general awareness requirement for training HAZMAT employees. The second course was designed to satisfy the function specific requirement for certain HAZMAT employees. The courses were developed through research of current commercial and DOD training materials and methods and the requirements set forth by Title 49 CFR.

SUBJECT: RESERVE STORAGE ACTIVITY, HYTHE, MODERNIZATION PLANNING ASSISTANCE

PROJECT: TD 79-93

Sep 1993

ABSTRACT:

This project was established at the request of the Commander, RSAH, UK. Assistance was provided in developing a supply modernization plan for RSAH. This report includes an operations

layout, equipment requirements, and sources of supply for equipment required to implement the layout.

SUBJECT: UNITED NATIONS RECOMMENDED PERFORMANCE TESTING OF
HAZARDOUS MATERIALS PACKAGINGS FOR THE NAVY ENGINEERING
LOGISTICS OFFICE - DOT 15A/125 CRATE

PROJECT: TE 80-93

Jul 1993

ABSTRACT:

With the 1 January 1991 change in the regulations pertaining to the international transportation of HAZMAT, and subsequent implementation of similar regulations for domestic transportation, it was necessary for DOD activities to obtain the performance testing for the packaging configurations for which they were responsible. The purpose of this project was to provide performance testing and test documentation, as requested by the Navy Engineering Logistics Office, for a nailed wood box conforming to DOT 15A/125, as well as PPP-B-621, style 2, class 2 (overseas). The box was configured for a classified solid load. The configuration contained an inert item which had been packed by the requesting activity. The configuration was tested in the "as received" condition. Subpart M of part II, 49 CFR, as well as chapter 9 of the United Nations Recommendations on the Transport of Dangerous Goods, known as the Orange Book, served as the reference documents prescribing which tests were to be performed for the packagings and/or the hazardous commodities. Testing procedures were prescribed by ASTM D 4919, in accordance with procedures outlined in appendix F of AMCPSCC project report AMC 13-88. Test results were documented using the designated report format that had been adopted for this specific testing program. The configuration successfully passed a 6-foot drop test, a 24-hour stacking test, and a 1-hour repetitive-shock vibration test. The approved test report was forwarded to DLA's central manager for HAZMAT for inclusion in the DOD PC POP III database.

SUBJECT: FORT CARSON MOBILIZATION STOCK PLANNING ASSISTANCE

PROJECT: TD 81-93

Sep 1993

ABSTRACT:

This project provided a warehouse layout for the storage of mobilization stocks at Fort Carson's 90,000-square-foot Colorado Springs, CO, airport facility. The proposed layout design was implemented by Fort Carson and the mobilization stocks were moved to the facility from Pueblo Army Depot Activity.

SUBJECT: UNITED NATIONS RECOMMENDED PERFORMANCE TESTING OF
HAZARDOUS MATERIALS PACKAGINGS FOR THE EDGEWOOD
RESEARCH, DEVELOPMENT, AND ENGINEERING CENTER -
CHEMICAL AGENT CONFIGURATIONS

PROJECT: TE 88-93

Sep 1993

ABSTRACT:

With the 1 January 1991 change in the regulations pertaining to the international transportation of HAZMAT, and subsequent implementation of similar regulations for domestic transportation, it was necessary for DOD activities to obtain the performance testing for the packaging configurations for which they were responsible. The purpose of this project was to provide that performance testing and test documentation, as requested by the Edgewood Research, Development, and Engineering Center (ERDEC), for chemical agent configurations. A custom made SRCXX and two LSC3 configurations were drop and repetitive-shock vibration tested. The stack test was not performed because the containers cannot be stacked or stacked upon. Internal pressure testing is to be conducted by another DOD test facility. Subpart M of part II, 49 CFR, as well as chapter 9 of the United Nations Recommendations on the Transport of Dangerous Goods, known as the Orange Book, served as the reference documents prescribing which tests were to be performed for the packagings and/or the hazardous commodities. Testing procedures were prescribed by ASTM D 4919, in accordance with procedures outlined in appendix F of AMCPSCC project report AMC 13-88. Test results were documented using the designated report format that had been adopted for this specific testing program. The pressure valve in one of the LSC3s was so damaged that the drop test was considered a failure. ERDEC will redesign the lid of the container to better protect the valve. The ERDEC approved test reports were forwarded to DLA's central manager for HAZMAT for inclusion in the DOD PC POP III database.